

Illness associated with "package tours": a combined Spanish-Scottish study*

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The occurrence of three deaths and substantial morbidity among members of a "package tour" who stayed at the same hotel in Benidorm, Spain, during the summer of 1973 provided an opportunity to study the experiences of persons undertaking this type of holiday and some of the factors that might affect their health. Of 252 tourists, 164 (65%) reported illness, 86 of those affected (52%) having respiratory symptoms. The three persons who died had predisposing factors and all had lobar pneumonia. In the control group of 157 persons, who stayed at other hotels in Benidorm, 82 (53%) experienced ill-health during their stay but fewer (38%) had respiratory illnesses. The study demonstrated some of the hazards encountered by the inexperienced traveller and also indicated the need to improve surveillance of what appears to be an unexpectedly large amount of illness among international tourists.

International tourist traffic has increased tremendously in recent years, and most of it now involves rapid travel by air, and some risk of communicable disease (1). Rapid development of the "package tour" industry has contributed much to this change; for example, whereas in 1960 most British holiday-makers made their own arrangements and only 30% of main holidays were of the "organized" variety, by 1972 60% of holidays were "package holidays".

Spain is especially popular with foreign tourists; in 1975 approximately 30 million holidaymakers from other countries visited Spain. It is particularly popular with British tourists who, in 1972, spent 35% of their overseas holidays in Spain.

Many of those now taking such holidays are inexperienced travellers or are unaware of the health hazards of international travel. Evidence of much morbidity and some mortality was found during the investigation of an incident involving a party of predominantly Scottish "package deal" tourists to Spain in the summer of 1973. This article reports some of the findings of a study of this episode, and gives an insight into some of the problems connected with this modern method of travel and holiday-making.

EPIDEMIOLOGICAL, CLINICAL,
AND LABORATORY ASPECTS

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On 24 July 1973, the medical personnel at Abbotsinch Airport, Glasgow, were informed that a seriously ill man was on a plane returning with tourists who had been holidaying at Benidorm, a Mediterranean coastal resort in Spain. When the plane arrived at the airport the man was dead. Within the next 7 days, two other men from the same package tour and who stayed at the same hotel died with similar illnesses. Subsequent investigations revealed the following facts.

The tour

The package tour, which was organized by a large national company, involved 189 persons, most of

whom lived in the west and central parts of Scotland, although a smaller proportion of the tourists were drawn from other areas of the United Kingdom. The group was transported by one of the company's own planes from Glasgow on 14 July to Alicante Airport, and then by bus to Benidorm. The party was accommodated in a modern 14-storey hotel (built in 1971 and owned by the tour company). On 24 July the return journey was made, again via Alicante.

Morbidity

During the 10 days in Benidorm many of the party became ill. In order to ascertain the nature and extent of the morbidity, an attempt was made to locate as many as possible of the other tourists who had stayed at the same hotel and to record their experience by a standard questionnaire. A total of 252 persons were contacted, of whom 164 (65%) stated that they had felt ill enough to go to bed either during or immediately after their holiday (Table 1). Although the majority (26%) had had alimentary disorders, it was surprising to find that 51 (20%) had had respiratory disorders and 35 (14%) had had both respiratory and alimentary illnesses. From the enquiry it is known that at least 9 of the tourists (including two of those who subsequently died) were admitted to hospitals in the United Kingdom after their return home.

The ages of those affected and unaffected are shown in Table 2; 129 (51%) were aged between 10 and 30 years.

An analysis of dates of onset of illness and of the rooms occupied in the hotel did not reveal any unusual or suspicious groupings.

Mortality

The details of the three men from the "package tour" who died are as follows:

1. A 54-year-old man was found to be dead on arrival at Glasgow Airport on 24 July. He had lived in Lanarkshire and had been employed as an electric welder. On 16 July he developed vomiting and diarrhoea and became weak and mentally confused. During the flight to Glasgow he became increasingly dyspnoeic, lost consciousness 30 min before the plane landed, and was found to be dead on arrival in Glasgow. There was a past history of obesity, and by dieting he had been able to lose 7.25 kg in weight. He had also suffered from chronic bronchitis. At post mortem both lungs were oedematous and pneu-

Table 1. Number of cases of illness experienced by persons staying at the hotel in Benidorm ^a

Illness	Male	Female	Total
Alimentary disorders	32 (27)	33 (24)	65 (26)
Respiratory disorders	24 (31)	27 (20)	51 (20)
Respiratory and alimentary disorders	19 (16)	16 (12)	35 (14)
Other illnesses	8 (7)	5 (4)	13 (5)
Not ill	34 (29)	54 (40)	88 (35)
Total	117 (46)	135 (54)	252

^a Numbers in brackets are percentages.

Table 2. Illness experienced by persons staying at the hotel in Benidorm according to age and sex ^a

Age (years)	Ill		Not ill		Totals
	Male	Female	Male	Female	
< 10	1 (1)	1 (1)	2 (6)	3 (6)	7 (3)
10-20	27 (33)	17 (21)	10 (29)	14 (26)	68 (27)
21-30	19 (23)	26 (32)	7 (20)	9 (17)	61 (24)
31-40	4 (5)	9 (11)	5 (15)	5 (9)	23 (9)
41-50	16 (19)	16 (20)	5 (15)	7 (13)	44 (17)
51-60	13 (16)	6 (7)	3 (9)	7 (13)	29 (12)
≥ 61	2 (2)	3 (4)	—	4 (7)	9 (4)
Not known	1 (1)	3 (4)	2 (6)	5 (9)	11 (4)
Totals	83 (33)	81 (32)	34 (14)	54 (21)	252

^a Numbers in brackets are percentages.

monia was present in the left lower lobe; there was evidence of chronic bronchitis.

2. The second man died in a Lanarkshire hospital on 26 July. He was 62 years of age and worked in a steel plant in Motherwell, Lanarkshire. While in Benidorm he complained of faintness and anorexia on 18 July. Two days later he became pyrexial and on 22 July developed diarrhoea which ceased next day. Although still very weak he was able to board the plane on 24 July but he was noticed to become progressively disorientated. After his return he was dyspnoeic and cyanosed, and pneumonia was diagnosed. He was admitted to Law Hospital, Carlisle, Lanarkshire, on 26 July, but despite treatment with

Table 3. Numbers of cases of illness experienced by persons staying at other hotels in Benidorm (control group) ^a

Illness	Male	Female	Totals
Alimentary disorders	27 (43)	23 (24)	50 (32)
Respiratory disorders	1 (2)	10 (11)	11 (7)
Respiratory and alimentary disorders	5 (8)	15 (16)	20 (13)
Other illnesses	—	1 (1)	1 (1)
Not ill	29 (47)	46 (48)	75 (47)
Totals	62 (39)	95 (61)	157

^a Numbers in brackets are percentages.

Table 4. Illness experienced by persons staying at other hotels in Benidorm according to age and sex (control group) ^a

Age (years)	Ill		Not ill		Totals
	Male	Female	Male	Female	
< 10	2 (6)	—	3 (10)	1 (2)	6 (4)
10–20	9 (27)	12 (24)	5 (17)	14 (30)	40 (25)
21–30	6 (18)	18 (37)	5 (17)	16 (35)	45 (29)
31–40	1 (3)	5 (10)	3 (10)	3 (7)	12 (8)
41–50	9 (27)	7 (14)	4 (14)	3 (7)	23 (15)
51–60	5 (15)	6 (12)	5 (17)	6 (13)	22 (14)
≥ 61	—	—	3 (10)	2 (4)	5 (3)
Not known	1 (3)	1 (2)	1 (4)	1 (2)	4 (2)
Totals	33 (21)	49 (31)	29 (18)	46 (29)	157

^a Numbers in brackets are percentages.

cefaloridine and steroids he died that same evening. He had a past history of pernicious anaemia, diagnosed the previous year and treated with blood transfusion, folic acid, and cyanocobalamin. His wife had noted that he was previously dyspnoeic on effort and had a chronic cough. He smoked 20 cigarettes a day. At post mortem both lungs were consolidated and there was evidence of chronic bronchitis and emphysema. An old cerebral infarction was also detected but this was considered to be insignificant.

3. The final fatality occurred on 1 August. A 50-year old miner, also from Lanarkshire, became ill on 19 July with diarrhoea, pyrexia, and weakness. Five

days later he developed delirium, cough, and dyspnoea. He was admitted to Ruchill Hospital, Glasgow, on 27 July where right lower lobe pneumonia was diagnosed. He was treated with steroids and various antibiotics (ampicillin, cloxacillin, and gentamicin) but deteriorated and died five days after admission. He already had diabetes mellitus for which he was treated with chlorpropamide. One month before his terminal illness he had had a respiratory infection that required treatment with tetracycline. At post mortem there was consolidation of almost the whole of the right lung.

Microbiological findings

Cultures of swabs taken from the lungs of the last two fatal cases each grew *Klebsiella aerogenes* of the same Klebocine type. A scant growth of *Escherichia coli* was obtained from the lung of the first case. Serum samples were obtained from at least 10 of those who had been ill. The wife of the first fatal case had a rising antibody titre to *Mycoplasma pneumoniae*, and his brother, who had also been on the same tour, had a rising titre to coxsackievirus type B2.

In addition to routine bacteriological and virological cultures of specimens from those who died or were ill, serological tests were performed as far as possible to exclude the following infections or agents: influenzavirus A and B, parainfluenza 1, respiratory syncytial virus, adenovirus, measles, varicella zoster, herpes, coxsackievirus B, *M. pneumoniae*, psittacosis (Chlamydia B), Q fever, typhus (Weil-Felix reaction), tularaemia,^a typhoid fever, paratyphoid, and brucellosis (Widal reactions), leptospirosis, and pneumococcal infection (antipneumolysin test),^a without positive findings except as mentioned above.

Toxicological findings

Because the ill and fatal cases had all stayed at the same hotel at the same time, the possibility of ingestion of a toxic substance was investigated. The bar stock was sequestered and samples examined, both in Spain and in Glasgow. Body tissues from the fatal cases were similarly tested. No methanol, Paraquat, or organophosphorus compounds were detected in any of the samples.^a The possibility of toxic dust or gas from paint, wallpapers, the air-conditioning sys-

^a The serological tests to exclude tularaemia and pneumococcal infection were performed by courtesy of Professor P. J. Watt (Southampton) and Professor G. Tunevall (Stockholm), and for toxic substances by Dr F. Fish and Dr B. Caddie (Glasgow).

Table 5. Total number of cases of illness experienced by all tourists studied ("package tour" and control groups combined) and percentage distribution by age (years) and sex

Type of illness	Total number of cases			Percentage distribution by age and sex															
	M	F	Total	< 10		10-20		21-30		31-40		41-50		51-60		≥ 60		not known	
				M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Alimentary disorders ^a	83	87	170	1	0.5	14	9	10	19	2	4	11	10	8	5	0.5	0.5	1	1
Respiratory disorders ^a	49	68	117	1	—	14	14	12	21	1	8	6	9	7	3	1	3	1	2
Other illnesses	8	6	14	—	—	36	14	—	14	7	—	7	7	7	7	—	—	—	—
All illnesses	140	161	301	1	0.5	15	11	10	20	2	6	9	9	7	5	1	1	1	1

^a 24 males and 31 females had both alimentary and respiratory disorders.

tem, and building construction work was considered but no supporting evidence was found.

Control group

In order to assess the "normal" morbidity and mortality among tourists on "package holidays", questionnaires were despatched to a control group of 157 persons who stayed at three other hotels in Benidorm during July 1973. Of these, 82 (53%) reported some form of illness (Table 3). In contrast to those members of the "package tour" under investigation, the majority (32%) had alimentary infections and only 11 (7%) had respiratory disorders, although 20 (13%) had both respiratory and alimentary symptoms. The age distribution of the control group was approximately similar to those members of the affected tour (Table 4).

Combining the data obtained from members of the "package tour" under study with that of the control group, it is evident that illnesses during holidays were reported more often by men (65% of the 179 men studied) than women (57% of the 230 studied) and that the distribution of illnesses by age was bimodal, with peaks in the second and third decades of life in both sexes and in the fifth and sixth decades in males (Table 5). An analysis of the type of illness by age and sex did not suggest a direct relationship.

OTHER INVESTIGATIONS

Climate

In July 1973 the temperature was particularly high in Benidorm and Alicante. Temperatures around 35°C were frequently recorded and it was estimated

that the temperature in the Alicante terminal building on 24 July was around 38°C.

Aircraft specifications

The aeroplane (a Boeing 737) used for the "package tour" had only recently been purchased and the heating, cooling, and pressurization systems were very effective. It was customary to regulate the cabin temperature to about 18°C before take-off and to increase it gradually to 21°C during the flight.

DISCUSSION

The deaths of three men, among a group of holidaymakers on the same "package tour" and staying at the same hotel, within seven days of each other, and all with pneumonia, naturally raised the possibility of a common etiology. Because of the suspicious circumstances, the efforts of clinicians, microbiologists, toxicologists, and epidemiologists both in Spain and in the United Kingdom were enlisted to investigate the possible causes.

Prime attention was given to considering infection or toxic factors as the cause of the morbidity and mortality among the holidaymakers. Infection of human origin was suggested as there was plenty of opportunity for contact between the members of the group; there was no evidence that animals, birds, or arthropod vectors were involved. It may be significant that *K. aerogenes* was isolated from the lungs of two of the fatal cases and that these isolates were of the same Klebocine type. However, it is rare for this organism to be a primary cause of death, it being usually recognized as a secondary invader when resistance is weakened. Nevertheless, each of the

persons who died had been debilitated by previous disease and during the terminal illness each had received antibiotic therapy that would have the effect of killing other organisms.

The possibility of toxic factors, including the ingestion of contaminated food and drink, poisoning by insecticides, etc., was closely examined, but epidemiological and toxicological evidence for this was not found. The remaining shared factors included multiple predisposing disabilities among the fatal cases.

It emerged from the many interviews undertaken during the investigation that many of the tourists overindulged in exposure to the sun, and eating and drinking (alcohol). A considerable amount of medical help (professional or otherwise) was sought by members of the group while in Spain for illnesses that also included tetany and manifestations of salt loss. This caused pressure on local resources and it was suspected that many patients attempted palliative therapy with a view to getting further medical attention when they returned to the United Kingdom.

This incident throws into relief the potential hazards for the huge numbers of inexperienced travellers now undertaking "package holidays", as this type of holiday imposes considerable and multiple stresses on those taking part.

These include:

1. transition from normal working routine to holiday life;
2. organization of travel arrangements and associated details;
3. journeys by surface and air, including physical and psychological effects of flight;
4. change of climate and environment—exaggerated in some cases by deliberate or unwitting overexposure to heat and sunshine: the temperatures experienced by the tourists investigated in this study were particularly high, and the difference between the very high temperature at Alicante Airport and that in the plane might have been additionally deleterious to persons already debilitated;
5. change of diet—exaggerated in some cases by deliberate or unwitting overindulgence or indiscretion;
6. overindulgence by some individuals in duty-free or cheap alcoholic drinks;
7. possible alterations in sleep and activity patterns.

These stresses may be especially marked since a significant proportion of those now taking "package holidays" are unaware of the hazards of foreign travel or the appropriate precautions required. Indeed our discussions with Spanish colleagues revealed much evidence of illness among tourists, mostly of a minor character, that could be attributable to incautious behaviour by the victims. The peak of illnesses in the second and third decades may reflect the energetic and adventurous behaviour of this age group; the peak in males in the fifth and sixth decades may be associated with the relative unfitness of older men as compared to women of the same age, complicated perhaps by competitive masculine behaviour and by unwillingness to recognize declining ability to keep up with younger men in terms of drink and exercise, etc.

Against this background of multifactorial stress that is known to provide risk-factors for respiratory or other illness (2), it is notable that the three fatal cases had personal predisposing factors:

1. all had a history of pre-existing illness;
2. all worked in heavy industrial environments;
3. all were males over 50 years of age.

This episode in Benidorm has drawn attention to several points on which more attention might be focused in the future. For example:

1. better recognition of the stress of travel;
2. better advice to intending travellers;
3. better medical control of tourists;
4. health education of travellers, especially for the less well-educated, for children, and for the elderly.

Because of the large numbers of persons now involved in package tours, more information about morbidity during and after return from holiday would be valuable to provide a basis for future recommendations and for guidance to the growing mass of overseas tourists. Progress has already been made at an international level to appraise the efficacy of preventive measures to diminish the risk of infections associated with the movement of people between countries. As part of this effort a conference on the prevention of intercountry spread of infectious diseases was held in Izmir, Turkey, under the auspices of the WHO Regional Office for Europe (3). This conference recognized that most of the health hazards of international travel affected the traveller

themselves rather than the inhabitants of the receiving countries, and recommendations were made to promote their health protection and to improve surveillance of infections and the rapid exchange of information between countries. Investigation of the 1973 Benidorm holiday incident reported here exemplified rapid and effective cooperation through both formal, official, and informal, personal channels. No evidence was found of the alarming epidemic possibilities initially postulated but the remarkable frequency of illness among such holidaymakers emerged on a scale previously unsuspected.

ADDENDUM

Since this text was prepared, serological evidence has been obtained at the Center for Disease Control, Atlanta, USA, to suggest that at least one of the fatal cases and three of the tourists who had been severely ill with pneumonia may have been infected by the recently described bacterium incriminated in the outbreak of severe respiratory illness (Legionnaires' disease) that occurred in Philadelphia in July 1976 (4). There are several epidemiological similarities between the Benidorm and Philadelphia incidents. Work to clarify this is in progress.

ACKNOWLEDGEMENTS

This collaborative study was undertaken with the help of many people: microbiologists, pathologists, toxicologists, community medicine specialists, physicians, environmental health officers, travel agents, and clerical workers. The secretarial assistance of Mrs L. Steele and Mrs N. Wilson is also greatly appreciated.

The help of Dr P. Brachman (Director, Bureau of Epidemiology), Dr D. Fraser (Chief, Special Pathogens Branch), and Dr C. Shepard (Chief, Leprosy and Rickettsia Branch), Center for Disease Control, with the investigation of the link between the Benidorm and Philadelphia outbreaks is greatly appreciated.

RÉSUMÉ

VOYAGES ORGANISÉS ET MALADIE: ÉTUDE CONJOINTE HISPANO-ÉCOSSAISE

Le décès, pendant l'été 1973, de 3 des participants d'un voyage organisé qui avaient séjourné à Benidorm, en Espagne, et la constatation d'une morbidité importante chez les autres membres du groupe logés dans le même hôtel ont fourni l'occasion d'étudier les aspects particuliers de ce type de déplacement pour les personnes qui le choisissent, ainsi que quelques-uns des facteurs pouvant affecter leur santé. Sur les 252 touristes qui ont habité l'hôtel, 164 (65%) ont déclaré avoir été malades, 86 de ceux-ci (soit 52%) ayant été atteints de troubles respiratoires. Les trois personnes décédées — qui avaient des facteurs prédisposants — ont succombé à une pneumonie lobaire. Dans le groupe de contrôle composé de 157 personnes logées dans d'autres hôtels de Benidorm,

82 (53%) ont aussi souffert d'une altération de leur santé au cours de leur séjour, mais on n'a constaté de troubles respiratoires que chez 38% des membres de ce groupe. La distribution des cas de maladie par âge chez tous les touristes inclus dans l'enquête était bimodale, présentant un pic chez les individus des deux sexes au cours des 2 décades 10-20 et 21-30 ans, et un autre au cours des cinquième et sixième décades chez les individus du sexe masculin. Les examens microbiologiques ont révélé la présence de *Klebsiella aerogenes* dans les poumons de 2 des personnes décédées. Aucune trace de substances toxiques n'a été trouvée dans l'hôtel ou les aliments et boissons consommés par les touristes.

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